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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,905	09/17/2003	Craig S. Tashman	00280748AA	2644
30743 7590 02/12/2007 WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C. 11491 SUNSET HILLS ROAD SUITE 340 RESTON, VA 20190			EXAMINER GE, YUZHEN	
			ART UNIT	PAPER NUMBER
			2624	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/12/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/663,905	<b>Applicant(s)</b> TASHMAN, CRAIG S.	
	<b>Examiner</b> Yuzhen Ge	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 6-10 are objected to because of the following informalities: claim 6 recites “tracing contours by fitting parametric curves their borders;” which is not meaningful.

Appropriate correction is required. The examiner will interpret it as “tracing contours by fitting parametric curves to their borders”. Claim 6 recites both “tracing contours by fitting parametric curves to their borders” and “tracing iso-surface projections by fitting curves to their borders” which are repetitive for iso-surface projections because they are also contours.

### *Claim Rejections - 35 USC § 112*

2. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites for a given image that is ‘for a given image that is in a same “class” as the image, re-representing *the image* by describing *the image*...’. It is not clearly what image “the image” is referring to. Is it the given image or the first image? The examiner will interpret *the image* as the given image or the second image. Claim 1 also recites “the data” in “representing the data so as to ...”. There is insufficient antecedent basis for this limitation in the claim. The examiner will interpret the data as the description.

Claim 4 recites the limitation “entities”, “entity group”, and “the interior”. There is insufficient antecedent basis for this limitation in the claim. The examiner will interpret them as “patterns”, “pattern groups”, and “the interior of the pattern”.

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Claim 6 recites “tracing contours by fitting parametric curves to their borders”. There is insufficient antecedent basis for this limitation in the claim. It is not clear what the word “their” is referring to. Also it is not clear what contours are being traced. The examiner will interpret “contours” as “contours defined by the boundary of the components” and “their borders” as “the borders of the contours”.

Claim 6 recites “tracing iso-surface projections by fitting curves to their borders”. There is insufficient antecedent basis for this limitation in the claim. It is not clear what the word “their” is referring to. Also it is not clear what is being projected. The examiner will interpret “iso-surface projections” as that of three-dimensional visualization of the image” and “their borders” as “the borders of the contours”.

***Claim Rejections - 35 USC § 102***

3. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Mead (6,088,484).

Regarding claim 1 (interpreted), Mead teaches a method of image compression comprising the steps of:

analyzing an image in terms of perceptual constructs of the human visual system (Figs. 1-3, col. 3, lines 39-45, col. 4, lines 37-56);

searching for patterns among analyzed abstractions of the image (col. 4 lines 37-56, Figs. 1-3);

describing the image in terms of the perceptual constructs and the patterns found among them (Figs. 1-3, col. 3, lines 39-45, col. 4, lines 37-56);

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for a given image that is in a same "class" as the image, re-representing the image by describing the image as a collection of parameterized versions of the patterns prevalent in that class of image (Figs. 1-3, col. 3, lines 39-45, col. 4, lines 37-56, using the libraries are describing image as a collection of parameterized versions of the patterns);

taking a resulting description outside of the context of abstract patterns (Figs. 1-3, col. 3, lines 39-45, col. 4, lines 37-56, col. 6, lines 10-28, features can be regarded as the resulting description); and

looking for redundancies in the description, then re-representing the data so as to eliminate the redundancies and thereby compress the description (col. 6, lines 10-28, coding the difference is compress the description).

Regarding claim 2 (interpreted), Mead teaches the method of image compression recited in claim 1, wherein the patterns identified, image components, parameterization of patterns, and lower level numerical encodings are all designed around images belonging to a narrow class of images (col. 6, lines 7-28, col. 4, lines 56-64, the method can be used for a narrow class of images).

4. Claims 1 and 2 (interpreted) are rejected under 35 U.S.C. 102(b) as being anticipated by Solberg et al (US Patent 6,134,338).

Regarding claim 1 (interpreted), Solberg et al teach a method of image compression comprising the steps of:

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analyzing an image in terms of perceptual constructs of the human visual system (Figs. 1A-1B and Figs. 2 and 4, viewports/texts/symbols are perceptual constructs);

searching for patterns among analyzed abstractions of the image (Figs. 1A-1B and Fig. 2, the step of recognizing texts and symbols requires searching);

describing the image in terms of the perceptual constructs and the patterns found among them (col. 32 lines 33-38, Figs. 1B and 2, col. 38, lines 60-65, text and symbols are perceptual constructs);

for a given image that is in a same "class" as the image, re-representing the image by describing the image as a collection of parameterized versions of the patterns prevalent in that class of image (col. 32 lines 33-38, Figs. 1A, 1B and 2, col. 38, lines 60-65, the prevalent patterns are text and symbols, the image is described by a vector format with text and symbols);

taking a resulting description outside of the context of abstract patterns (Figs. 1A, 1B and 2, col. 32 lines 33-38, Figs. 1B and 2, col. 38, lines 60-65, the prevalent patterns are text and symbols, the image is described by a vector format with text and symbols, the descriptions with text and symbols are resulting description); and

looking for redundancies in the description, then re-representing the data so as to eliminate the redundancies and thereby compress the description (Figs. 1A, 1B and 2, col. 32 lines 33-38, Figs. 1B and 2, col. 38, lines 60-65, using a recognized symbol to represent multiples of the same symbol in the raster image is eliminating redundancies, col. 1, lines 59-64, e.g., step 7 in Fig. 1B, link values with vector based object, Step 5, convert raster symbols to vectors).

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Regarding claim 2 (interpreted), Solberg et al teach the method of image compression recited in claim 1, wherein the patterns identified, image components, parameterization of patterns, and lower level numerical encodings are all designed around images belonging to a narrow class of images (abstract, col. 1, lines 19-64, this narrow class is mechanical/engineering drawings).

5. Claim 6 (interpreted) is rejected under 35 U.S.C. 102(e) as being anticipated by Perry et al (US Patent 7,106,332).

Regarding claim 6 (interpreted), Perry et al teach a method of compression of two-dimensional projections of three-dimensional visualizations of image data comprising the steps of:

inputting a two-dimensional image (col. 13, line 64-col. 14, line 12);

dismantling the two-dimensional image into components (col. 13 line 64-col. 14, line 25, an object is a component);

tracing contours by fitting parametric curves their borders (col. 16, lines 29-39, col. 16, line 60-col. 17, line 12);

tracing iso-surface projections by fitting curves to their borders (col. 3, line 66-col. 4, line 3, col. 16, lines 29-39, col. 6, lines 57-66, col. 16, line 60-col. 17, line 12, col. 16, lines 40-47);

representing numerical values of curve nodes as distances from one another or a local origin (abstract, col. 3, line 66-col. 4, line 3, col. 6, lines 56-64, col. 16, line 60-col. 17, line 17, col. 10, lines 51-62, col. 13, lines 42-50); and

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storing compact border and color description of contours and compact border and color description of iso-surfaces (col. 6, lines 56-64, col. 7, lines 23-32, col. 13, lines 64-col. 14, line 12, col. 14, lines 19-40, col. 17, lines 30-39, col. 4, lines 36-40, col. 6, lines 16-19).

***Claim Rejections - 35 USC § 103***

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mead in view of Yen (US Patent 5,135,397).

Regarding claim 3 (interpreted), Mead teaches the method of compression of two-dimensional projections of three-dimensional visualizations of image data recited in claim 6. However they do not explicitly teach wherein the narrow class of images are two-dimensional projections of three-dimensional visualizations of data generated by numerical weather simulations. Yen teaches generating data by numerical weather simulation and displaying it (abstract, col. 2, lines 30-67, col. 3, lines 21-24, Figs. 1 and 2, col. 1, lines 29-31, col. 1, lines 34-37, col. 6, lines 1-6, col. 7, lines 40-45, col. 10, lines 2-36). It is desirable to compress the image from the numerical weather simulation for storage and transmission (col. 1, lines 14-25 of Mead). Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the method of Mead to compress the images from the numerical weather simulation of Yen so that transmission and storage can be more efficient.



7. Claim 7 (interpreted) is rejected under 35 U.S.C. 103(a) as being unpatentable over Perry et al in view of Yen (US Patent 5,135,397).

Regarding claim 7 (interpreted), Perry et al teach the method of compression of two-dimensional projections of three-dimensional visualizations of image data recited in claim 6. However they do not explicitly teach wherein the data are generated by numerical weather simulations. Yen teaches generating data by numerical weather simulation (abstract, col. 2, lines 30-67, col. 3, lines 21-24, Fig. 2). It is desirable to compress the image from the numerical weather simulation for storage and transmission. Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to use the method of Perry et al to compress the images from the numerical weather simulation of Yen so that transmission and storage can be more efficient.

***Allowable Subject Matter***

8. Claims 4-5 and 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter. The prior art fails to teach the listed claims each of which specifically comprises the following listed feature(s) in combination with other limitations in the respective claims.

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Claim 4

re-representing entities with smoothly curved borders and an interior fill that can be parameterized and is either largely derivable from other image data or constant, as curve sequences and parameters required to describe the interior; and re-representing entity groups with constant structure that vary only in terms of a spatial parameter as references to the entity group, and a list of the values for the required parameters, each value being for each subsequent entity for the group.

Claim 8

-- wherein the step of dismantling the input image into components includes separation of solid filled contours, transparent, shaded colored two-dimensional projections of three-dimensional iso-surfaces, arrow color and orientations in three-dimensional space, and text and further comprising the steps of:

representing numerical values of arrow colors and orientations as differences; and  
storing compact color and orientation information for arrows and separated text.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuzhen Ge whose telephone number is 571-272 7636. The examiner can normally be reached on 7:30am-4:00pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on 571-272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yuzhen Ge  
Examiner  
Art Unit 2624

WENPENG CHEN  
PRIMARY EXAMINER

  
2/8/07